

## **CHEROKEE COUNTY EPA Region 7**

**KANSAS**

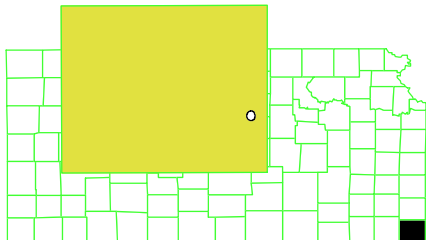
**EPA ID# KSD980741862**

**City: Galena**

**County: Cherokee County**

**Other Names: Tar Creek Area Site**

**Tri-State Mining District**



## **SITE DESCRIPTION**

The Cherokee County site is a former mining area covering about 115 square miles. It is part of a larger area sometimes called the Tri-State Mining District, which encompasses approximately 2,500 square miles in southeastern Kansas, southwestern Missouri and northeastern Oklahoma. Over one hundred years of widespread lead and zinc mining created piles of mine tailings which cover 4,000 acres in southeastern Cherokee County. The mine tailings contain lead, zinc, and cadmium which have leached into the shallow groundwater. Runoff from the waste piles also moves contaminants into nearby streams. The EPA has divided this mega-site into six subsites that correspond to six general mining locations. The six subsites have been grouped into seven operable units. Cleanup work is essentially complete at the Galena subsite, in the east-central portion of the entire site. This 25 square mile area had large tracts of mine and mill wastes, water filled craters where the ground collapsed, open mineshafts, and pits which have now been remediated. Residential soils in the town of Galena are impacted by mining and milling wastes in addition to wind deposited smelter wastes from a former operating smelter. Wastes have affected the quality of the shallow groundwater which was a primary drinking source for residents of the area. Surface water and surficial soils have also been impacted by mining wastes. Several heavy metals have been found in water samples from private wells and residential soils have also been impacted with metals. Surrounding lands are used for residences, business, light industry, farming, and grazing. Of the approximate 23,000 people living in Cherokee County, 3,800 of them reside in Galena. Galena's city water does not contain contaminants.

### **Site Responsibility:**

This site is being addressed through Federal and potentially responsible parties' actions.

### **NPL LISTING HISTORY**

**Proposed Date:** 12/30/82

**Final Date:** 09/08/83

**Deleted Date:**

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## THREATS AND CONTAMINANTS

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Acidic waters in mine shafts throughout the site, tailing piles, surface waters in the mine pits, and streams draining the site contain significant concentrations of lead, zinc, and cadmium. Surficial soils are contaminated with mining, milling, and smelting wastes. Risks to public health include incidentally ingesting soil, mine wastes, and contaminated dust, or ingesting contaminated surface waters, foodstuffs, or groundwater. Acid mine drainage containing dissolved heavy metals contributes to the transport of heavy metals into the Spring River, Short Creek, Tar Creek, and Shoal Creek. Ecological impacts have been demonstrated and the uppermost aquifer is contaminated. Polluted mine water also surfaces in Oklahoma's portion of Tar Creek. The former smelter near Galena was responsible for the airborne distribution of lead and cadmium in residential areas. Mining and milling wastes have also been imported into residential areas for use as fill, landscaping, and road construction materials. Wind and water action have also transported the various types of mining wastes into other areas.

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## CLEANUP APPROACH

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### Response Action Status

**Immediate Actions:** The EPA installed water treatment units on eight contaminated wells in Galena in 1986. In 1987, the EPA conducted a county wide study of wells and a water supply monitoring program for public and private sources of water. This study showed that two more homes needed the treatment units. These were removed upon completion of an alternate water supply remedy. The EPA completed a time-critical removal action for metals impacted residential soils in 1995. This action was performed in the residential areas of Galena and consisted of a total of 62 properties which included six day-care centers. All immediate actions have been completed and were performed at the Galena subsite.

**Alternate Water Supply:** The EPA selected an approach for supplying an alternate source of water to rural Galena residents in 1987. It featured the following: collecting clean groundwater through existing wells owned by the city; distributing that water through a pipeline network to the houses, businesses, and farms within the subsite, but outside the municipal water system; rehabilitating two wells needed for the project; and drilling a new well if the existing wells could not be modified. Based on public comments, the EPA decided to amend the cleanup actions to include construction of two new deep aquifer wells to collect water as well as two water storage tanks and the formation of a rural water district. These wells are being maintained and operated independently of the City of Galena. Construction of the two deep aquifer wells and the two water storage tanks was completed in 1992. Water line easement acquisition activities began in

1991 and were completed in 1993. This work is complete and is in the Operation and Maintenance phase. Over 400 residences were provided with a permanent source of clean drinking water. Later additions to the system have increased the total number of hook-ups to over 500.

**Treece Subsite:** The EPA initiated investigation activities at the Treece subsite in 1988. The parties potentially responsible for contamination of this area took over the study in early 1990. This investigation explored the nature and extent of soil and water pollution at the subsite and recommended the best strategies for final cleanup. The study of the Baxter Springs Subsite was grouped with the Treece subsite. The investigation was completed in the summer of 1994, and a remedy was selected in August 1997. Negotiations with the responsible parties were conducted in 1998/1999. The responsible parties agreed to perform the cleanup in 1999 and formalized this commitment by entering into a Consent Decree with EPA. Remedy implementation began in late 1999 and was completed in 2000. Approximately 150 residential properties were sampled and 41 properties were remediated. The Treece residential cleanup was fully completed in 2000.

**Baxter Springs Subsite:** The EPA initiated an investigation at the Baxter Springs subsite in 1987. The parties potentially responsible for contamination of this area took over the study in conjunction with the Treece investigation in early 1990. This study explored the nature and extent of soil and water pollution at the subsite and recommended the best strategies for final cleanup. As with the Treece subsite, a remedy was selected in August 1997. The Baxter Springs and Treece Subsite cleanup actions have been grouped into a single Record of Decision. The responsible parties will perform the cleanup for the Baxter Springs subsite which began in late 1999 and is continuing. Approximately 130 residential properties have been tested and 42 properties remediated to date. The residential component is ongoing and the mine waste cleanup portion is at the 95% design stage. The mine waste design will be completed in 2001 followed by the start of a mine waste cleanup action. The Consent Decree discussed in the Treece Subsite summary also includes the Baxter Springs actions.

**Galena Groundwater and Surface Water:** In 1989, the EPA, with the agreement of the State of Kansas, selected a remedy for reducing impacts to the groundwater and surface water in the Galena subsite. It included the following: selectively moving and placing mine wastes in areas away from surface water bodies; capping wastes with less impacted materials followed by revegetation; diverting surface streams away from the contaminants; recontouring the land surface to control runoff and erosion; and investigating deep aquifer wells. The investigation and design of cleanup activities were completed in early 1993. Implementation of cleanup activities began in June 1993 and involved plugging four wells and cleaning up one well while the mine tailings actions included the cleanup of approximately 900 acres of mining and milling wastes. Cleanup was completed in late 1994. This work is final and is now in the Operation and Maintenance phase.

**Galena Residential Soils:** Residential yards have been contaminated in Galena from a historic primary lead/zinc smelter in addition to the presence and importation of mine wastes. The EPA investigated the nature and extent of contamination and completed characterization reports in 1996. The EPA selected the cleanup approach for metals impacted residential yards in July 1996. The remedy included excavation and disposal of contaminated soils followed by placement of

clean backfill and grass sod or seed. The approach also included an evaluation of the feasibility of using phosphate treatment methods in the future in lieu of excavation. A total of 602 residential properties were remediated from 1997 to 1999. This cleanup was essentially completed in 1999; however, approximately 50 additional properties were remediated in 2000 and 2001. The operation and maintenance phase will begin in 2001.

**Badger, Lawton, Waco, and Crestline Subsites:** These subsites are grouped into a single operable unit and are likely the final work effort for the Cherokee County site. These subsites were addressed last due to their relatively small area and rural location away from population centers. The characterization phase for these subsites began in late 1998 and is ongoing. All fieldwork was completed in 1999 and the draft characterization report was submitted in 1999. Review of the draft report necessitated the collection of additional field data in 2000 and the submission of an expanded report in 2001. The cleanup will likely involve a presumptive remedy approach based on the previous efforts at the site. The characterization and feasibility study phases are expected to be complete in 2001.

**Site Facts:** The EPA issued a Unilateral Administrative Order to the potentially responsible parties in May 1990 to design the groundwater and surface water cleanup activities at the Galena subsite. However, the EPA assumed control of the remedy design in July 1990, because the parties failed to comply with the Order. Subsequent cost recovery and bankruptcy actions have successfully recovered funds from potentially responsible parties. The EPA and the potentially responsible parties executed an Administrative Order on Consent in May 1990 that required the parties to investigate the Baxter Springs and Treece subsites. Another Administrative Order on Consent was executed in September 1998 which required responsible parties to characterize the Badger, Lawton, Waco, and Crestline subsites. A total of four Records of Decision have been released for various operable units of the Cherokee County site. Two of these decision documents have been fully implemented, one is essentially complete, and the fourth Record of Decision began implementation in 1999. A fifth Record of Decision is planned for late 2001 and will likely be the final operable unit cleanup decision document at the site.

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## ENVIRONMENTAL PROGRESS



Two Records of Decision have been fully implemented and are now in the operation and maintenance phase. A third Record of Decision is essentially complete and will enter the operation and maintenance phase in 2001. The alternate water supply for the Galena subsite has been completed and a rural water district was formed. Over 500 homes have now been connected to the system. Cleanup of approximately 900 acres of surface mine wastes in Galena has been completed. These activities have reduced the potential for exposure to contaminants at the Cherokee County site while remaining investigations and cleanups are underway. The residential soil cleanup in Galena will be completed in 2001 and will be the third Record of Decision that is fully implemented; over 700 residential properties have been remediated at the Galena subsite. Cleanup actions pursuant to the fourth Cherokee County Record of Decision began in 1999 at the Baxter Springs and Treece Subsites and have resulted in the remediation of over 80 residential properties. Characterization work began in 1998 at the final subsites to be studied, the Badger, Lawton, Waco, and Crestline areas. All field work at these areas was completed in 2000, and the characterization report is currently under review.

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## SITE REPOSITORY



Galena Public Library, 315 W.  
Seventh, Galena, KS  
Johnston Public Library, 210 West  
10th, Baxter Springs, KS

Superfund Records Center  
901 N. 5th St.  
Kansas City, KS 66101  
Mail Stop SUPR  
(913)551-4038

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## REGIONAL CONTACTS

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**COMMUNITY INVOLVEMENT**

Hattie Thomas

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Leo Henning

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## MISCELLANEOUS INFORMATION

**STATE:**

KS

KS

0737

**CONGRESSIONAL DISTRICT:**

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**EPA ORGANIZATION:**

SFD-SUPR/FFSE

## MODIFICATIONS